

## User Manual



### ML200

### Battery Powered Milliohm Meter



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# 1. INTRODUCTION

## NOTE

*This meter has been designed and tested According to CE Safety Requirements for Electronic Measuring Apparatus, IEC / EN 61010-1 and other safety standards. Follow all warnings to ensure safe operation.*

## WARNING

**READ "SAFETY NOTES" (NEXT PAGE) BEFORE USING THE METER.**

- CAT IV - Is for measurements performed at the source of the low voltage installation.
- CAT III - Is for measurements performed in the building installation.
- CAT II - Is for measurement performed on circuits directly connected to the low voltage installation.

## 2. SAFETY NOTES

- Read the following safety information carefully  
Before attempting to operate or service the meter.
- Use the meter only as specified in this manual.  
Otherwise, the protection provided by the meter  
may be impaired.
- Rated environmental conditions :
  - (1) Indoor Use.
  - (2) Installation Category III.
  - (3) Pollution Degree 2.
  - (4) Altitude up to 2000 meters.
  - (5) Relative humidity 80% max.
  - (6) Ambient temperature 0~40°C.
- Observe the International Electrical Symbols listed  
below :



Meter is protected throughout by double insulation or reinforced insulation.



Warning ! Risk of electric shock.



Caution ! Refer to this manual before using the meter.

### 3. FEATURES

- Protection class: IP65 (Lid closed)
- 4-Wire method for  $m\Omega$  measurement.
- Measures down to  $100\mu\Omega$  ( $0.1m\Omega$ ).
- Maximum resolution of  $100\mu\Omega$ .
- 4 Lines  $\times$  20 Characters large LCD.
- 200 measurement results can be saved in the memory and recalled on the display.
- Auto power off.
- Data hold function.
- MAX / MIN function.
- Power source: 1.5V "C" battery  $\times$  8
- Long battery life and stable power.
- Low battery indication.
- Safety Standard :  
EN 61010-1 CAT III 300V  
EN 61326-1

## 4. SPECIFICATIONS

|                           |  |
|---------------------------|--|
| Measuring ranges (mΩ)     | 0~200.0mΩ in steps of 100uΩ<br>0~2000mΩ in steps of 1mΩ<br>0~20.00Ω in steps of 10mΩ<br>0~200.0Ω in steps of 100mΩ<br>0~2000Ω in steps of 1Ω |
| Accuracy                  | ±0.8% of reading ±4 digits over the operating temperature range, 0°C ~ 40°C, with the supplied test leads                                    |
| Test current              | 100mA: 200.0mΩ / 2000mΩ<br>10mA: 20.00Ω / 200.0Ω<br>1mA: 2000Ω   |
| Protection fuse           | 200mA/600V × 1   |
| Operating temperature     | 0°C ~ 40°C   |
| Operating humidity        | 80% Maximum  |
| Dimensions                | 250(L) × 190(W) × 126(D)mm   |
| Weight (battery included) | Approx. 2035g  |
| Power source              | 1.5V "C" battery × 8   |
| Safety standard           | EN 61010-1 CAT III 300V<br>EN 61326-1  |
| Accessories               | Instruction manual    Test leads<br>Shoulder belt    Batteries   |

## 5. GENERAL

- **Protection fuse:**

200mA/600V × 1

- **Low Battery Indication :**

"LoBAT " message appears on the right lower part of the display when the battery voltage drops below accurate operating level.

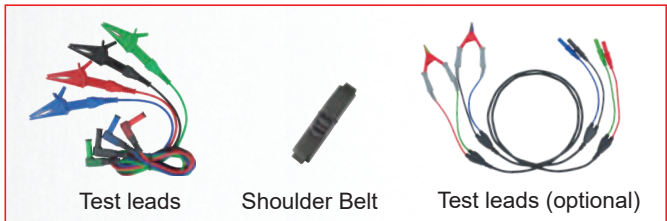
- **Accessories :**

Instruction manual

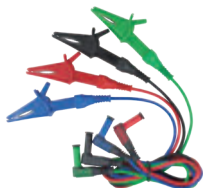
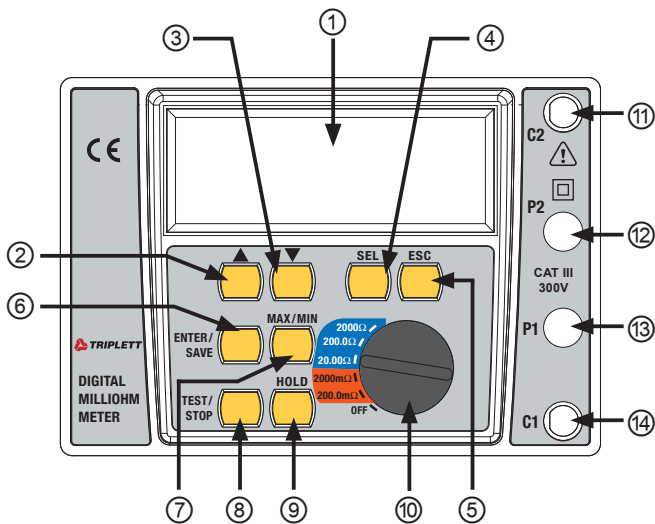
Test leads

Shoulder belt

Batteries



## 6. INSTRUMENT LAYOUT



• Test Leads



- ① LCD: 4 Lines × 20 Characters large LCD
- ② ▲ Button
- ③ ▼ Button
- ④ SEL Button

For 3 different functions:

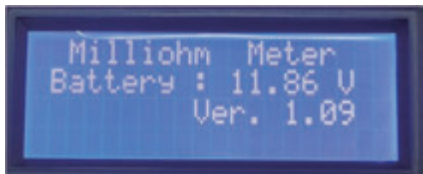
- (1) Date / Time ADJ
- (2) Record display
- (3) Record clear

- ⑤ ESC Button
- ⑥ ENTER / SAVE Button
- ⑦ MAX / MIN Button
- ⑧ TEST / STOP Button
- ⑨ HOLD Button
- ⑩ Function rotary switch
- ⑪ C2 Terminal
- ⑫ P2 Terminal
- ⑬ P1 Terminal
- ⑭ C1 Terminal

## 7. MEASUREMENT

### 1. Power On :

Rotate the function switch to keep it from staying in the "OFF" position.



The system will be auto off when it has no operation after 3 minutes.

- ### 2. Before testing, you must make sure that the resistance under test does not have any voltage. When the voltage exceeds 5 volts or the probe is connected to a power supply of more than 5 volts, a warning message will be displayed.



### 3. Select scale range :

There are 5 scale range "200.0m $\Omega$ ", "2000m $\Omega$ ", "20.00 $\Omega$ ", "200.0 $\Omega$ " and "2000 $\Omega$ " could be selected by rotating the function switch.

2000 $\Omega$  scale uses the 1mA to test.

200.0 $\Omega$  & 20.00 $\Omega$  scales use the 10mA to test.

2000m $\Omega$  & 200.0m $\Omega$  scales use the 100mA to test.

The screen will display date, time, test current and maximum resistance.



### 4. The measurement function

Press "TEST/STOP" button to measure the resistance value.



Press "MAX/MIN" button to get the max value or min value in the measurement process.

Press "HOLD" button to keep the value of resistance.

Press "TEST/STOP" button to stop the measurement.

## 5. Record saving function

When the measurement is finished, press "SAVE/ENTER" button to save the result of measurement. At the same time, the last line will display the number of record.

The memory can record up to 200 records.



## 6. Minor function

Press "ESC/SEL" button and hold over 1 second to enter the minor function.



Use the "UP" and "DOWN" button to move the function selection cursor, and press "SAVE/ENTER" to enter the minor function, and press "ESC/SEL" button to return back to the main page.

- Date / Time ADJ

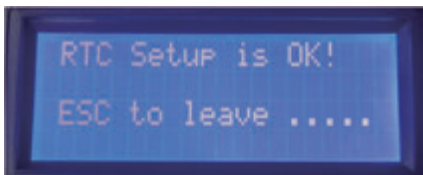


Press "ESC/SEL" button to leave the Date/Time ADJ.

Press "UP" or "DOWN" button to set the correct number.

Press "TEST/STOP" button to switch to the next unit of date or time, and go on the required adjustment.

After all adjustments are completed, press "SAVE/ENTER" button to confirm and save the date and time.



Press "ESC/SEL" button to return back to the minor function menu.

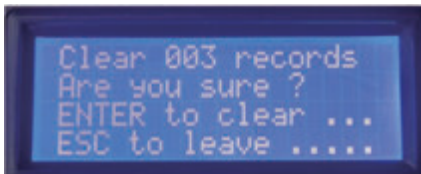
- RECORD DISPLAY



Press "UP" or "DOWN" button to reach the record that you want to look up.

Press "ESC/SEL" button to return back to the minor function menu.

- RECORD CLEAR



Press "SAVE/ENTER" button to clear all records in the memory.

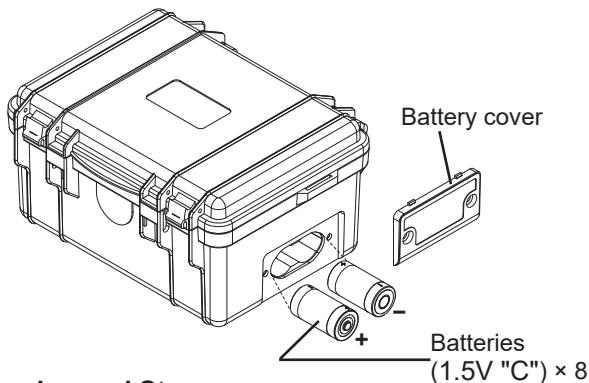
Press "ESC/SEL" button to return back to the minor function menu.

## 8. MAINTENANCE

### Battery replacement :

When "LoBAT " message appears on the right lower part of the display, change new batteries as follows :

- (1) Disconnect the test leads from the instrument and turn off the power.
- (2) Unscrew the battery cover and replace with new batteries(1.5V "C" battery × 8 ).
- (3) Re-install the battery cover.



### Cleaning and Storage :

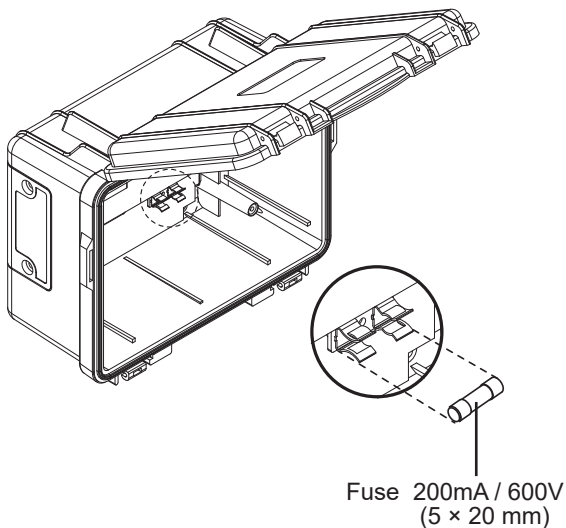
#### **WARNING**

To avoid electrical shock or damage to the meter, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent. Do not use abrasives or solvents. If the meter is not used for over 60 days, remove the batteries for storage.

## 9. FUSE REPLACEMENT

Open the meter case, replace with a new fuse which has the same specification 200mA/600V, 5×20mm.



*Due to our policy of constant improvement and development, we reserve the right to change specifications without notice.*



## ***Warranty***

Triplett / Jewell Instruments extends the following warranty to the original purchaser of these goods for use. Triplett warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (2) two years from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty.